

Practice Test

Multiple Choice:

Write the letter of your choice in the space provided. 1 pt each.

1. B	2. D	3. A	4. D	5. D
6. A	7. C	8. B	9. A	10. A

Free Response:

Show all work for credit. Write your final answer in the space provided. 5 pts each unless otherwise indicated.

<p>11. What is the degree of the polynomial?</p> $2x^3 - 5x^2 + 7x$ <p>Degree: <u>3</u></p> <p>Is the polynomial a monomial, binomial, <u>trinomial</u>, or none of these? (Circle your choice)</p>	<p>12. Simplify</p> $(3x^2 - 5x + 4) + (2x^2 - x - 7)$ $5x^2 - 6x - 3$																					
<p>13. Simplify</p> $(4x^2 - 7x + 5) - (7x^2 - 2x + 1)$ $4x^2 - 7x + 5 - 7x^2 + 2x - 1$ $-3x^2 - 5x + 4$	<p>14. Simplify</p> $2x^2(3x^2 - 4x + 5)$ $6x^4 - 8x^3 + 10x^2$																					
<p>15. Simplify</p> $(x - 3)(2x + 7)$ <table border="1" style="margin-left: 20px;"> <tr> <td></td> <td>2x</td> <td>+7</td> </tr> <tr> <td>x</td> <td>2x<sup>2</sup></td> <td>+7x</td> </tr> <tr> <td>-3</td> <td>-6x</td> <td>-21</td> </tr> </table> $2x^2 + x - 21$		2x	+7	x	2x <sup>2</sup>	+7x	-3	-6x	-21	<p>16. Simplify</p> $(x + 2)(x^2 + 2x - 4)$ <table border="1" style="margin-left: 20px;"> <tr> <td></td> <td>x<sup>2</sup></td> <td>+2x</td> <td>-4</td> </tr> <tr> <td>x</td> <td>x<sup>3</sup></td> <td>+2x<sup>2</sup></td> <td>-4x</td> </tr> <tr> <td>+2</td> <td>+2x<sup>2</sup></td> <td>+4x</td> <td>-8</td> </tr> </table> $x^3 + 4x^2 - 8$		x <sup>2</sup>	+2x	-4	x	x <sup>3</sup>	+2x <sup>2</sup>	-4x	+2	+2x <sup>2</sup>	+4x	-8
	2x	+7																				
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<p>17. Simplify</p> $(x - 3)^2$ $(x - 3)(x - 3)$ $x^2 - 3x - 3x + 9$ $x^2 - 6x + 9$	<p>18. Simplify</p> $(3x + 2)(3x - 2)$ $9x^2 - 4$ <p style="margin-left: 20px;"><del>-6x + 6x</del></p>																					

Multiple Choice

1. A moving company sells boxes for packing items. The large box has a volume of  $6x^2 + 2x + 3$  cubic units. The medium box has a volume of  $2x^2 - 5$  cubic units. A customer purchases two large boxes and one medium box. What is the total volume of the purchased boxes?

- A.  $12x^2 + 4x - 2$  cubic units  
 B.  $14x^2 + 4x + 1$  cubic units  
 C.  $14x^2 + 2x - 2$  cubic units  
 D.  $14x^2 - x + 6$  cubic units
- $2(6x^2 + 2x + 3) + 2x^2 - 5$   
 $\rightarrow 12x^2 + 4x + 6 + 2x^2 - 5 \rightarrow 14x^2 + 4x + 1$

2. What is the product of the binomials:  $(r - 8)(r + 5)$ ?

- A.  $r^2 - 40$   
 B.  $r - 3$   
 C.  $r^2 + 13r - 40$   
 D.  $r^2 - 3r - 40$
- $\begin{array}{c|c} & r+5 \\ \hline r & r^2+5r \\ -8 & -8r-40 \end{array}$   
 $\rightarrow r^2 - 3r - 40$

3. What is the simplified form of  $(b + 7)^2$ ?

- A.  $b^2 + 14b + 49$   
 B.  $b^2 + 49b + 49$   
 C.  $b^2 + 49$   
 D.  $b + 49$
- expand! FOIL  
 $\begin{array}{c|c} & b+7 \\ \hline b & b^2+7b \\ +7 & 7b+49 \end{array}$   
 $\rightarrow b^2 + 14b + 49$

4. Which of the following expressions is equivalent to the expression  $\frac{1}{2}(x - 4)^2 + 6$ ?

- A.  $x + 2$   
 B.  $\frac{1}{4}x^2 - 2x + 10$   
 C.  $\frac{1}{2}x^2 - 2$   
 D.  $\frac{1}{2}x^2 - 4x + 14$

$\frac{1}{2}(x-4)^2 + 6$   
 $\rightarrow \frac{1}{2}(x-4)(x-4) + 6$   
 $\begin{array}{c|c} & x-4 \\ \hline x & x^2-4x \\ -4 & -4x+16 \end{array}$   
 $\frac{1}{2}(x^2 - 8x + 16) + 6$   
 $\frac{1}{2}x^2 - 4x + 8 + 6$   
 $\frac{1}{2}x^2 - 4x + 14$

5. Select all of the expressions that are equivalent to  $-x^2 + 3x + 10$ .

<del>I.</del>	<del><math>(x + 5)(x - 2)</math></del>
II.	$-(x + 2)(x - 5) \rightarrow -x^2 - 5x + 2x + 10 \rightarrow -x^2 - 3x + 10$
III.	$(-x - 2)(x - 5) \rightarrow -x^2 + 5x - 2x + 10 \rightarrow -x^2 + 3x + 10$
IV.	$(x + 2)(5 - x) \rightarrow 5x - x^2 + 10 - 2x \rightarrow -x^2 + 3x + 10$

- ~~A.~~ I only  
~~C.~~ II only

- B. II and III  
 D. II, III, and IV



6. What is the simplified form of  $(-3b + 7)^2$ ?

- A.  $9b^2 - 42b + 49$
- C.  $9b^2 + 49$

$(-3b+7)(-3b+7)$

$-3b$	$9b^2$	$-21b$
$7$	$-21b$	$49$

$\rightarrow 9b^2 - 42b + 49$

- B.  $-9b^2 - 42b + 49$
- D.  $-9b^2 + 49$

7. Find an equivalent form of  $2(b + 7)^2$ ?

- A.  $2b + 14$
- C.  $2b^2 + 28b + 98$

$2(b+7)(b+7)$

$b$	$b^2$	$+7b$
$+7$	$+7b$	$+49$

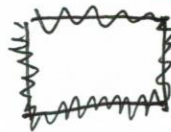
$2 \cdot (b^2 + 14b + 49) \rightarrow 2b^2 + 28b + 98$

- B.  $2b^2 + 98$
- D.  $4b^2 + 56b + 196$

8. If the length of a rectangle in terms of  $x$  is  $5x^2 + 4x - 2$ , and its width is  $3x^2 + 2x + 8$ , what is the perimeter of this rectangle?

*distance around*

- A.  $5(4x^2 + 3x + 3)$
- C.  $4(4x^2 + 12x + 12)$



$10x^2 + 8x - 4 + 6x^2 + 4x + 16$

- B.  $4(4x^2 + 3x + 3)$

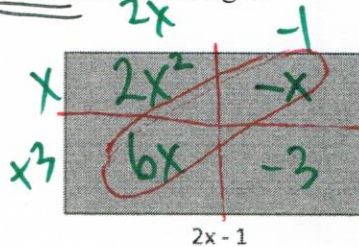
- D.  $4(4x^2 + 12x + 3)$

$16x^2 + 12x + 12$   
 $4(4x^2 + 3x + 3)$

9. What is the expression that represents the area of the rectangle?

$A = l \cdot w$

- A.  $2x^2 + 5x - 3$
- B.  $6x + 4$
- C.  $2x^2 - 5x - 3$
- D.  $2x^2 + 7x - 3$



$2x^2 + 5x - 3$

10. Match the expression with its name:  $6x^3 - 9x + 3$

- A. cubic trinomial
- C. quadratic binomial

- B. fourth-degree monomial
- D. not a polynomial

*second degree*